

US-PAT-NO: 5849135
DOCUMENT-IDENTIFIER: US 5849135 A
TITLE: Particulate contamination removal from wafers using plasmas and mechanical agitation

Brief Summary Text - BSTX (14):

To achieve the foregoing and other objects, and in accordance with the purposes of the present invention, as embodied and broadly described herein, the method for removing particulate matter from the surface of a wafer may include the steps of: forming a plasma at a chosen voltage in the vicinity of the surface of the wafer, wherein a plasma sheath is formed at a chosen distance above the wafer such that the surface thereof is bombarded by positive ions and electrons from the plasma, thereby inhibiting the buildup of charge thereon; inducing vibrations in the wafer such that the particulate matter is caused to move away from the surface of the wafer and into the plasma sheath, the separated particulate matter then being exposed to electron bombardment from the plasma, thereby attaining a negative charge such that it passes into the plasma; and purging the particulate matter from the plasma.

Brief Summary Text - BSTX (16):

In a further embodiment of the invention, in accordance with its objects and purposes the apparatus for removing particulate matter from the surface of a wafer may include: means for generating a plasma in the vicinity of the surface of the wafer, wherein a plasma sheath is formed at a chosen distance above the wafer such that the surface thereof is bombarded by positive ions and electrons from the plasma, thereby inhibiting the buildup of charge thereon; means for inducing vibrations in the wafer such that the particulate matter is caused to move away from the surface of the wafer and into the plasma sheath, the separated particulate matter then being exposed to electron bombardment from the plasma, thereby attaining a negative charge such that it passes into the plasma; and means for removing the particulate matter from the plasma.